SCHOOL OF ENGINEERING

DIPLOMA

MECHANICAL ENGINEERING
(INDUSTRY INTEGRATED)

SYLLABUS BOOK

AY 2025-26

INSTITUTE VISION
To emerge as an Institute of Excellence by imparting value-based education aided with Research, Innovation and Entrepreneurial skills.

INSTITUTE MISSION	
1.	To impart the holistic engineering education of highest quality & prepare socially responsible professionals with entrepreneurial skills.
2.	To prepare value-aided engineering professionals to meet up global industry requirements by imparting cutting edge professional education.
3.	To inculcate the attitude of research and innovation among the stake holders through experiential and project-based teaching-learning pedagogy.
4.	To acquire global talent pool by providing world class amenities for teaching, learning & research.

Graduates will demonstrate ability to:

PEO No	PROGRAMME EUCATIONAL OBJECTIVES
PEO 1	Solve real-world engineering problems, design and develop innovative and cost-effective solutions exhibiting engineering skills/fundamentals to cater needs of society.
PEO 2	Excel in Industry/technical profession, higher studies, and entrepreneurship exhibiting comprehensive competitiveness.
PEO 3	Exhibit professional ethics & values, effective communication, teamwork, multidisciplinary approach, and ability to relate engineering issues to broader societal framework.

PO No	PROGRAMME OUTCOMES
PO 1	Engineering knowledge: Apply knowledge of engineering fundamentals, science, mathematics & engineering specialization for the solution of complex engineering problems.
PO 2	Problem analysis: Identify, formulate and analyze complex engineering problems leading to substantial conclusions using basic principles of mathematics, science and engineering.
PO 3	Design/development of solutions: Develop solutions for complex engineering problems and design system components or processes meeting specified needs having due consideration for the safety and societal & environmental considerations.
PO 4	Conduct investigations of complex problems: Use research-based knowledge & methods like design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid & viable conclusions.
PO 5	Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools for prediction and modeling of complex engineering activities with an understanding of the limitations.
PO 6	The engineer and society: Apply cognitive learning by the contextual knowledge to assess societal, health, safety, legal and cultural issues and following responsibilities relevant to the professional engineering practice.
PO 7	Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge & skill needed for sustainable development.
PO 8	Values & Ethics: Apply basic moral values & ethical principles and pledge to professional ethics/norms and responsibilities of the engineering practice.
PO 9	Individual and team work: Function effectively as an individual/as a team member or as a leader in diverse teams, and in multidisciplinary settings.
PO 10	Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO 11	Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects in multidisciplinary environments.
PO 12	Life-long learning: Recognize the need, do necessary preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Credit Guidelines (General)			
Component	Hour/Week	Credit	Total Hours/Semester
Theory	1	1	15
Practical	2	1	30
Tutorial	1	1	15
Note: In specific cases; extra credits can be granted for specific/important subjects.			

CO-PO Mapping Guidelines		
Mapping Level	% age Mapping	Indicator
0 / -	0	No Mapping
1	0-33	Low Level (Slightly Mapped)
2	33-66	Medium Level (Moderately Mapped)
3	>66	High Level (Strongly Mapped)

Syllabus Book

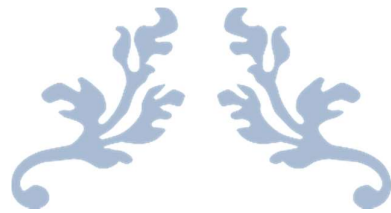# Institute of Diploma Studies

P P Savani University

School of Engineering

Effective From: 2025-26
Authored by: P P Savani University
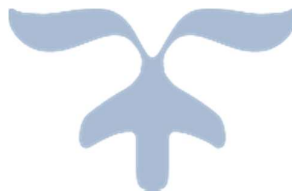
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FIRST YEAR
INSTITUTE OF DIPLOMA STUDIES

SCHOOL OF ENGINEERING

INSTITUTE OF DIPLOMA STUDIES

TEACHING & EXAMINATION SCHEME FOR DIPLOMA ENGINEERING PROGRAMME AY:2025-26(BATCH:2025)

Sem.	Course Code	Course Title	Offered By	Teaching Scheme					Examination Scheme						
				Contact Hours				Credit	Theory		Practical		Tutorial		Total
				Theory	Practical	Tutorial	Total		CE	ESE	CE	ESE	CE	ESE	
1	IDSH1110	Mathematics-I	SH	3	0	2	5	5	40	60	0	0	100	0	200
	IDSH1130	Physics	SH	3	2	0	5	4	40	60	40	60	0	0	200
	IDCV1110	Basics of Civil Engineering	CV	3	0	2	5	5	40	60	0	0	100	0	200
	IDCE1110	Computer Fundamentals	CE	3	4	0	7	5	40	60	40	60	0	0	200
	CFLS2110	Elementary Communicative English-I	CLFS	3	0	0	3	3	100	0	0	0	0	0	100
						Total	**25**	**22**							**900**
2	IDSH1120	Mathematics-II	SH	3	0	2	5	5	40	60	0	0	100	0	200
	IDSH1140	Chemistry	SH	3	2	0	5	4	40	60	40	60	0	0	200
	IDME1110	Basics of Mechanical Engineering	ME	3	0	2	5	5	40	60	0	0	100	0	200
	IDIT1110	Python Programming	IT	3	2	0	5	4	40	60	40	60	0	0	200
	IDME1120	Workshop Fundamentals	ME	0	2	0	2	2	0	0	100	0	0	0	100
	CFLS2120	Elementary Communicative English-II	CLFS	2	0	0	2	2	100	0	0	0	0	0	100
						Total	**24**	**22**							**1000**

P P Savani University
School of Engineering
Institute of Diploma Studies

Department of Applied Science & Humanities

Course Code: IDSH1110
Course Name: Mathematics-1
Prerequisite Course(s): Algebra, Geometry, Trigonometry till 9th Standard level

Teaching & Examination Scheme:

Teaching Scheme (Hours/Week)				Examination Scheme (Marks)						
Theory	Practical	Tutorial	Credit	Theory		Practical		Tutorial		Total
				CE	ESE	CE	ESE	CE	ESE	
03	00	02	05	40	60	00	00	100	00	200

CE: Continuous Evaluation, ESE: End Semester Exam

Objective(s) of the course:

To help learners to
- outline logarithm properties.
- implement concepts of Determinants and Matrices for solving science and engineering problems.
- present usefulness of trigonometry.
- acquire knowledge of co-ordinate geometry and ability to work with applications to Engineering Mathematics.

Course Content:

SECTION-I			
Module No.	Content	Hours	Weightage in %
1.	**Logarithm** Basic concept of logarithm, Rules and related examples,Applications of logarithm.	5	11
2.	**Trigonometry** Basic concept of trigonometry, Units of angles (degree and radian), Allied & compound angles, Multiple–submultiples angles, Graph of sine and cosine, Periodic function, Sum and factor formula.	10	21
3.	**Co-ordinate geometry** Introduction, Point, Distance formula, Mid-point, Locus of a point, Straight lines, Slope of a line, Equation of a straight line, The general equation, Angle between two lines, Circle.	8	18
SECTION-II			
4.	**Statistics** Introduction, Central tendency, Mean, Mean of grouped data, Median, Median for grouped data, Mode for grouped data, Mode,	10	23

		Standard deviation, Standard deviation for grouped data.		
5.	**Determinants and Matrices** Basic concept of determinants and matrices, Addition and subtraction, Product, Inverse up to 3X3 matrix, Solution of simultaneous equations up to three variables, Applications of determinants and matrices.	12	27
		TOTAL	**45**	**100**

List of Tutorials:

Sr. No.	List of Tutorial	Hours
1.	Logarithm-1	4
2.	Logarithm-2	2
3.	Trigonometry-1	2
4.	Trigonometry-2	2
5.	Trigonometry-3	2
6.	Co-ordinate geometry-1	4
7.	Co-ordinate geometry-2	2
8.	Statistics-1	2
9.	Statistics-1	2
10.	Statistics-2	2
11.	Determinants and Matrices-1	2
12.	Determinants and Matrices-2	2
13.	Determinants and Matrices-3	2
	TOTAL	**30**

Text Book:

Title	Author(s)	Publication
Diploma Engineering Mathematics	H. K. Dass	H. K. Dass
Engineering Mathematics - 3rd Edition	Anthony croft & others	Pearson Education Publication

Reference Book:

Title	Author(s)	Publication
Basic Mathematics	G.C. Patel and Ami C. Shah	Atul Prakashan
Advanced Mathematics for Polytechnic	Dr. N. R. Pandya	Macmillan Publication
Applied Mathematics	W. R.Neelkanth	Sapna Publication

Course Evaluation:
Theory:
- Continuous Evaluation consists of two tests, each of 30 marks and 1 hour of duration and average of the same will be converted to 30 marks.
- Faculty evaluation consists of 10 marks as per the guidelines provided by the Course Coordinator.
- End Semester Examination consists of 60 marks.

Tutorial:
- Continuous evaluation consists of performance of tutorial which will be evaluated out of 10 Marks for each tutorial and average of the same will be converted to 75 marks.
- Viva of 25 marks.

Course Outcome(s):

After the completion of the course, the following course outcomes will be able to:

IDSH1110	MATHEMATICS-1
CO 1	Solve engineering problems using algebraic and trigonometric concepts.
CO 2	Apply coordinate geometry concepts to analyze spatial relationships in engineering contexts.
CO 3	Analyze data sets and interpret statistical results for decision-making in engineering applications.
CO 4	Demonstrate the ability to crack engineering related problems based on determent and matrices.

Level of Bloom's Revised Bloom's Taxonomy in Assessment

1: Remember	2: Understand	3: Apply
4: Analyze	5: Evaluate	6: Create

Module No	Content	RBT Level
1	Logarithm	1,2,3,5
2	Trigonometry	2,3,4,5,6
3	Coordinate geometry	2,3,4,5
4	Statistics	1,2,3,4,5
5	Determinants and Matrices	2,3,4,5

Department of Applied Science & Humanities

Course Code: IDSH1130
Course Name: Physics
Prerequisite Course(s): Concept of Science up to 9th Standard

Teaching & Examination Scheme:

Teaching Scheme (Hours/Week)				Examination Scheme (Marks)						
Theory	Practical	Tutorial	Credit	Theory		Practical		Tutorial		Total
				CE	ESE	CE	ESE	CE	ESE	
03	02	00	04	40	60	40	60	-	-	200

CE: Continuous Evaluation, ESE: End Semester Exam

Objective(s) of the Course:

To help learners to

- understand the basic principles of physics and apply for the advancement of engineering and technology.
- experimenting the laboratory concepts to apply in their career of engineering.

Course Content:

SECTION-I			
Module No.	Content	Hours	Weightage in %
1.	**Introductory concepts:** Need of measurement and unit in engineering and science, definition of unit, requirements of standard unit, systems of units- CGS, MKS and SI, fundamental and derived quantities and their units Definition of accuracy, precision and error, estimation of errors -absolute error, relative error and percentage error, rules and identification of significant figures. (Numerical on above topics)	08	18
2.	**Mechanics:** The concept of Force, Newton's 1st law of motion, Newton's 2nd law of motion, Newton's 3rd law of motion, Conservation of momentum, Applications of Conservation of linear momentum, Impulse. (Numerical on above topics)	07	15
3.	**Work, Energy and Power:** Work done by a constant force and a variable force, Kinetic energy, Work-energy theorem, Power, Notion of potential energy, Potential energy of a spring, Conservative forces, Conservation of mechanical energy (kinetic and potential energies), Non-conservative forces. (Numerical on above topics)	07	15
SECTION-II			

4.	**Mechanical properties of solids:** Deforming force, Restoring force, Elastic and plastic body, Stress and Strain with their types, Elastic limit, Hooke's law, Young's modulus, Bulk modulus, Modulus of rigidity and Relation between them (no derivation), Stress- Strain diagram, Yield point, Ultimate stress, Breaking stress, Factor of safety. (Numerical on above topics)	08	18
5.	**Properties of fluids:** Pascal's law and its applications (hydraulic lift and hydraulic brakes), Viscosity, Stokes' law, terminal velocity, streamline and turbulent flow, critical velocity, Bernoulli's theorem and its applications, Surface energy and surface tension, angle of contact. (Numerical on above topics)	08	18
6.	**Heat transfer:** Introduction to thermodynamics, Temperature and Heat, Transmission of heat - Conduction, Convection and Radiation, Law of thermal conductivity, Coefficient of thermal conductivity and its S.I. unit, Heat capacity and Specific heat of materials, Celsius, Fahrenheit and Kelvin temperature scales and their conversion formula. (Numerical on above topics)	07	16
	TOTAL	**45**	**100**

List of Practical:

Sr. No.	Name of Practical	Hours
1.	To study about basic unit conversion and dimension analysis.	04
2.	To measure diameter and the dimension of regular body of known mass using Vernier Calipers.	04
3.	To measure the thickness of a sheet and diameter of a wire with the help of Micrometer Screw Gauge.	04
4.	To determine the radius of curvature of a given spherical surface by a spherometer.	04
5.	To verify ohm's law by using ammeter and voltmeter.	02
6.	To determine the coefficient of viscosity of a given viscous liquid by measuring the terminal velocity of a given spherical body.	04
7.	To determine the value of 'g' using simple pendulum.	04
8.	To study the relationship between the temperature of a hot body and time by plotting a cooling curve.	04
	TOTAL	**30**

Text Book(s):

Title	Author/s	Publication
Physics Part-I and II	Resnick and Haliday	Wiley Eastern Publication
Concept of the Modern Physics	A. Beiser	Tata McGraw-Hill Education
Concept of Physics	H.C. Verma	Bharati Bhawan
Fundamentals of Physics	Gomber and Gogia	Pradeep publications
NCERT Physics part 1 & 2		NCERT

Course Evaluation:

Theory:

- Continuous Evaluation consists of two tests each of 30 marks and 1 hour of duration and average of the same will be converted to 30 marks.
- Faculty evaluation consists of 10 marks as per the guidelines provided by Course Coordinator.
- End Semester Examination will consist of 60 marks.

Practical:
- Continuous Evaluation consists of Performance of Practical which will be evaluated out of 20 marks for each practical and average of the same will be converted to 10 Marks.
- Internal viva and practical performance consist of 20 Marks.
- Practical performance/quiz/drawing/test of 30 marks during End Semester Exam.
- Viva/Oral performance of 30 marks during End Semester Exam.

Course Outcome(s):
After the completion of the course, the students will be able to:

IDSH1130	PHYSICS
CO 1	Identify physical quantities, different systems of units and make measurements with accuracy by minimizing different types of errors to solve real life relevant problems.
CO 2	Analyze type of motions and apply the knowledge to solve equation of motion and conservation of momentum principle to describe motion of rocket, recoil of gun etc.
CO 3	Define scientific work, energy and power and their units. Derive relationships for work, energy and power and solve related problems.
CO 4	Learn about the concept of elasticity, it's types and applications from engineering perspectives.
CO 5	Describe the properties of fluids, understand the concepts of viscosity and surface tension and their respective applications.

Level of Bloom's Revised Bloom's Taxonomy in Assessment

1: Remember	2: Understand	3: Apply
4: Analyze	5: Evaluate	6: Create

Module No	Content	RBT Level
01	Introductory Concepts	3,5
02	Mechanics	1,4
03	Work, Energy and Power	1,3
04	Mechanical properties of solids	2,6
05	Properties of fluids	1,5
06	Heat transfer	3,4

P P Savani University
School of Engineering
Institute of Diploma Studies

Department of Civil Engineering

Course Code: IDCV1110
Course Name: Basics of Civil Engineering
Prerequisite Course(s):

Teaching & Examination Scheme:

Teaching Scheme (Hours/Week)				Examination Scheme (Marks)						
Theory	Practical	Tutorial	Credit	Theory		Practical		Tutorial		Total
				CE	ESE	CE	ESE	CE	ESE	
03	00	02	05	40	60	-	-	100	00	200

CE: Continuous Evaluation, ESE: End Semester Exam

Objective(s) of the course:

To help learners to
- Scope and significance of civil engineering in infrastructural development.
- Surveying and levelling techniques and their importance in construction and land measurements.
- construction materials, their properties, and their selection based on strength, durability, economy, and environmental considerations.
- Highlight advancements in civil engineering, focusing on sustainable practices, smart city planning, and innovative systems for urban development.

Course Content:

SECTION-I			
Module No.	Content	Hours	Weightage in %
1.	**Introduction:** Branches of Civil Engineering, Scope of Civil Engineering, Role of Civil Engineer in Society. Impact of infrastructural development on the economy of a country.	4	8
2.	**Surveying and Levelling:** Definition of Surveying, Aims and applications, Fundamental principles of surveying, Classification of surveying, Plans and maps, Scales, and Units of measurement, Introduction to liner and angular measurements, Types of compass. Introduction to levelling, Aims and application of levelling, Methods of levelling.	10	22
3.	**Overview of Construction Material:** Scope of construction materials in Building Construction, Selection of materials for different civil engineering structures based on strength, durability, Eco friendly and economy.	9	20
SECTION-II			

4.	**Building Construction:** Introduction, Classification of buildings (types of buildings), Types of loads acting on buildings, Building Components and their functions and nominal dimensions, Bonds in brickwork.	6	13
5.	**Building Services:** Introduction, Water supply system in a building, drainage, House drainage system, Electrification, Building finishes.	8	19
6.	**Advancements in Civil Engineering:** Smart city and its features, Solid waste management systems, Mass transport systems, Bus Rapid Transit System (BRTS), Metro, Green Building, Features of earthquake resistance structures.	8	18
	TOTAL	**45**	**100**

List of Tutorials:

Sr. No.	List of Tutorial	Hours
1.	Units of Conversion exercise	4
2.	Preparation of sketches on Conventional signs, symbols and abbreviations	2
3.	Assignment of Surveying and levelling	2
4.	Chart preparation of various materials. Collection of rate and sample.	4
5.	Preparation of sketchbook showing various bonds.	4
6.	Preparation sketch of various building components.	4
7.	Assignment based upon house drainage system.	2
8.	Assignment based on green building.	2
9.	Case studies on smart cities.	2
10.	Case study on BRTS and metro.	4
	TOTAL	**30**

Text Book:

Title	Author(s)	Publication
Elements of Civil Engineering	Anurag Kandya	Charotar Publication
Building Construction	Dr.B.C.Punmia	Laxmi Publication

Reference Book:

Title	Author(s)	Publication
Surveying and leveling	N. N. Basak	Tata McGraw Hill Education
Engineering Material	S.C. Rangwala	Charotar Publication
Basic Civil Engineering	M.S.Palanichamy	McGraw Hill

Course Evaluation:

Theory:
- Continuous Evaluation consists of two tests, each of 30 marks and 1 hour of duration and the average of the same will be converted to 30 marks.
- Faculty evaluation consists of 10 marks as per the guidelines provided by the Course Coordinator.
- End Semester Examination consists of 60 marks.

Tutorial:
- Continuous evaluation consists of the performance of the tutorial which will be evaluated out of

10 Marksfor each tutorial and the average of the same will be converted to 30 marks.

- MCQ-based examination consists of 20 marks.

Course Outcome(s):

After the completion of the course, the following course outcomes will be able to:

IDCV1110	BASICS OF CIVIL ENGINEERING
CO 1	Understand the scope and applications of Civil Engineering.
CO 2	Describe the methods of levelling and demonstrate its applications in real-world scenarios.
CO 3	Evaluate materials based on strength, durability, eco-friendliness, and economic considerations for different civil engineering structures.
CO 4	Identify the various building components, methods of construction, and services.
CO 5	Describe the Concept of Smart Cities and promote sustainable civil engineering practices.

Level of Bloom's Revised Bloom's Taxonomy in Assessment

1: Remember	2: Understand	3: Apply
4: Analyze	5: Evaluate	6: Create

Module No	Content	RBT Level
1	Introduction	1,2,3,4
2	Surveying and Levelling	2,3,4,5
3	Overview of Construction Material	2,3,4,5,6
4	Building Construction	1,2,3,5
5	Building Services	2,3,5
6	Advancements in Civil Engineering	1,2,3,5

P P Savani University
School of Engineering
Institute of Diploma Studies

Department of Computer Engineering

Course Code: IDCE1110
Course Name: Computer Fundamentals
Prerequisite Course(s): NA

Teaching & Examination Scheme:

Teaching Scheme (Hours/Week)				Examination Scheme (Marks)						
Theory	Practical	Tutorial	Credit	Theory		Practical		Tutorial		Total
				CE	ESE	CE	ESE	CE	ESE	
03	04	00	05	40	60	40	60	-	-	200

CE: Continuous Evaluation, ESE: End Semester Exam

Objective(s) of the course:

To help learners to
- develop understanding of basic concepts that can be used in programming language.
- develop the algorithm as well as flowchart for particular problem.
- enforce logical thinking.
- understand the fundamentals of programming concepts and methodology.

Course Content:

SECTION-I			
Module No.	Content	Hours	Weightage in %
1.	**Introduction to Computers** Evolution of Computers: Generations of Computers, Functional Components of a Computer, Types of Software: System Software, Application Software, Utility Programs, Number Systems: Binary, Octal, Decimal, and Hexadecimal, Introduction to Computer Networks and the Internet	7	15
2.	**Basics of C Programming:** Introduction to Computer Programming, Importance of Programming in Problem Solving, Programming Methodologies (Structured, Object-Oriented, etc.), Steps in Program Development, Overview of Programming Languages, Features of C and Its Importance, Writing, Compiling, and Executing C Programs, Understanding Errors: Syntax Errors, Logical Errors, and Runtime Errors	6	18
3.	**Data Types, Operators, and Tokens:** Data Types and Variables, Primitive Data Types in C, Variables and Constants, Scope and Lifetime of Variables, Operators, Types of Operators in C, Expressions and Operator Precedence, Tokens, Overview of Tokens: Keywords, Identifiers, Constants, Strings, and Operator	10	22
SECTION-II			

	Control Structures in C:		
4.	Decision-Making, Simple If and If-Else Statements, Switch Case and Nested If-Else, Loops, For, While, and Do-While Loops, Using Break and Continue, Nested Loops	8	25
5.	**Arrays and Strings:** Arrays, Introduction to Arrays, Accessing Elements and Array Operations, Applications of Arrays, Strings, Declaring and Initializing Strings, String Functions: strlen(), strcat(), strcpy(), strcmp(), Input and Output with Strings	14	20
	TOTAL	**45**	**100**

List of practical:

Sr. No.	List of Practical	Hours
1.	Identify CPU, RAM, Hard Disk, and other internal components.	2
2.	Compare various types of operating systems.	2
3.	Write and execute a "Hello, World!" program. Write a program to perform addition, subtraction, multiplication, and division of two numbers.	2
4.	Develop a program to calculate the area and perimeter of a rectangle.	4
5.	Declare and initialize variables of different data types.	4
6.	Write a program to evaluate a complex mathematical expression using arithmetic operators.	4
7.	Demonstrate the use of relational and logical operators in a program.	4
8.	Write a program to determine whether a number is positive, negative, or zero.	6
9.	Develop a program to calculate grade based on marks using `if-else` or `switch` statements.	6
10.	Write a program to display the multiplication table of a given number using a loop.	6
11.	Calculate the factorial of a number using a `for` loop.	4
12.	Write a program to generate pyramid patterns using nested loops.	4
13.	Develop a program to check whether a number is prime using nested control structures.	4
14.	Write a program to input and display elements of an array.	2
15.	Implement a program to search for a specific element in an array.	2
16.	Write a program to reverse a given string without using inbuilt function.	2
17.	Develop a program to count the number of vowels, consonants, and digits in a string.	2
	TOTAL	**60**

Text Book:

Title	Author(s)	Publication
Programming in ANSI C	E. Balagurusamy	McGraw Hill Education
Fundamentals of Computers	V. Rajaraman	PHI Learning Pvt. Ltd.

Reference Book:

Title	Author(s)	Publication

Computer Fundamentals	N.M. Desai	University Granth Nirman Board
Microsoft Office Guide	Hiren Desai	Parshwa Publication

Course Evaluation:

Theory:
- Continuous Evaluation consists of two tests, each of 30 marks and 1 hour of duration and average of the same will be converted to 30 marks.
- Faculty evaluation consists of 10 marks as per the guidelines provided by the Course Coordinator.
- End Semester Examination consists of 60 marks.

Tutorial:
- Continuous Evaluation consists of performance of practical which will be evaluated out of 10 marks for each practical and average of the same will be converted to 20 marks.
- Internal viva consists of 20 marks.
- Practical performance/quiz/drawing/test consists of 30 marks during End Semester Exam.
- Viva/ Oral performance consists of 30 marks during End Semester Exam.

Course Outcome(s):

After the completion of the course, the following course outcomes will be able to:

IDCE1110	COMPUTER FUNDAMENTALS
CO 1	Understand computer architecture, software types, number systems, and basics of networks.
CO 2	Use MS Office tools for document creation, data management, and multimedia presentations.
CO 3	Develop and debug basic C programs using programming methodologies.
CO 4	Implement solutions using data types, operators, and control structures in C programming.
CO 5	Solve problems with arrays and strings, including data manipulation and algorithm implementation.

Level of Bloom's Revised Bloom's Taxonomy in Assessment

1: Remember	2: Understand	3: Apply
4: Analyze	5: Evaluate	6: Create

Module No	Content	RBT Level
1	Introduction to Computers	1,2,3,5
2	Essentials of MS Office	2,3,4,5
3	Basics of C Programming	2,3,4,5,6
4	Data Types, Operators, and Tokens:	2,3,5
5	Control Statements in C	2,3,5
6	Arrays and Strings	1,2,3,5

P P Savani University
Centre for Language Studies

Course Code: CFLS2110
Course Name: Elementary communicative English-I
Prerequisite Course(s): --

Teaching & Examination Scheme:

Teaching Scheme (Hours/Week)				Examination Scheme (Marks)						
Theory	Practical	Tutorial	Credit	Theory		Practical		Tutorial		Total
				CE	ESE	CE	ESE	CE	ESE	
03	00	00	03	100	00	00	00	00	00	100

Objective(s) of the Course:

To help learners to

- hone English Grammar to use language effectively in everyday life.
- use tenses to build vocabulary.
- understand and use Sentence formation and types.
- use comparative degree to express comparison.
- create sentence in active-passive voice.

Course Content:

Section I			
Module No.	Content	Hours	Weightage in %
1.	**Parts of Speech – I** • Types of Nouns • Verb • Pronoun (personal, possessive) • Adverbs • Adjectives	05	12
2.	**Parts of Speech – II** • Use of Prepositions of time and place • Conjunctions • Interjections • Articles 'A, An, and The' • Indicators- this, that, these, those	05	13
3.	**Tenses** • Present and past simple form of 'to be' – am/is/are/was/were • Present Tense (all forms) • Past Tense (all forms) • Future Tense (all forms)	06	25
Section II			
Module No.	Content	Hours	Weightage in %
1.	**Vocabulary** • Basic Vocabulary	03	12

	• Academic Vocabulary • Jargons		
2.	**Auxiliary Verb** • So, neither-nor, either-or • Shall, should, can, could, may, might, must	03	13
3.	**Types of Sentences** • Simple, Compound, and Complex sentences • Practice of Assertive, Negative, Interrogative, Exclamatory Sentences • Question Tag • 'WH' Questions • 'How much' & 'How Many' • Reported Speech • Active-Passive voice	08	25

Text Book (s):

Title	Author/s	Publication
High School English Grammar & Composition	Wren & Martin	Blackie ELT Books (An imprint of S. Chand Publishing)

Reference Book (s):

Title	Author	Publication
Intermediate English Grammar (Second Edition)	Raymond Murphy	Cambridge University Press
Advanced English Grammar	Martin Hewings	Cambridge University Press

Course Evaluation:

Theory:
- Continuous Evaluation consists of two tests each of 25 marks.
- End Semester Examination consists of 60 marks.

Course Outcome(s):

CFLS2110	ELEMENTARY COMMUNICATIVE ENGLISH-I
CO 1	Identify and use parts of speech effectively to express them.
CO 2	Understand familiar words related to everyday communication.
CO 3	Use English grammar to communicate effectively.
CO 4	Utilize tenses in real-world communication.
CO 5	Apply various vocabularies to express thoughts.
CO 6	Express comparison effectively.
CO 7	Use active-passive voice and reported speech.

Level of Bloom's Revised Bloom's Taxonomy in Assessment

1: Remember	2: Understand	3: Apply
4: Analyze	5: Evaluate	6: Create

Module No	Content	RBT Level
1	Grammar & Vocabulary	1,3
2	Listening	2,4,5
3	Speaking	3,6
4	Reading	2,4,5
5	Writing	3,6

Department of Applied Science & Humanities

Course Code: IDSH1120
Course Name: Mathematics-II
Prerequisite Course(s): Algebra, Geometry, Trigonometry till 9th Standard level

Teaching & Examination Scheme:

Teaching Scheme (Hours/Week)				Examination Scheme (Marks)						
Theory	Practical	Tutorial	Credit	Theory		Practical		Tutorial		Total
				CE	ESE	CE	ESE	CE	ESE	
03	00	02	05	40	60	-	-	100	0	200

CE: Continuous Evaluation, ESE: End Semester Exam

Objective(s) of the course:
To help learners to
- This course is designed to give a comprehensive coverage at an introductory level to the subject of Functions and Limits, Differentiation, Integration and First Order Differential Equations.
- Recognize importance of differentiation and integration for solving engineering problems.

Course Content:

SECTION-I			
Module No.	Content	Hours	Weightage in %
1.	**Complex Number** Introduction, Mathematical Operations, Polar form, De Movire's Theorem.	6	13
2.	**Functions and Limits** Introduction of Function, Types of function, Classification of function, Limit of a function, Properties of limit, Standard limits, limit of trigonometric functions.	8	18
3.	**Differentiation** Introduction of Differentiation, Derivative of standard functions, Working rules, Differentiation of composite function, Differentiation of parametric functions, Differentiation of implicit function, Derivative using logarithms, Successive differentiation, Application of Derivative (Maxima, Minima, Velocity & Acceleration).	12	27
SECTION-II			

4.	**Integration** Introduction of Integration, Integration of standard functions, Integration by substitution, Integration by parts, Integration using partial fraction.	10	22
5.	**Mensuration** Basic concept of Mensuration, Area of Triangle, Square, Rectangle, Trapezium, Parallelogram, Rhombus and Circle surface, Volume of Cuboids, Cone, Cylinder and Sphere.	9	20
	TOTAL	**45**	**100**

List of Tutorials:

Sr. No.	List of Tutorial	Hours
1.	Complex Number-1	2
2.	Complex Number-2	2
3.	Complex Number-3	2
4.	Functions and Limits-1	4
5.	Functions and Limits-2	2
6.	Differentiation-1	2
7.	Differentiation-2	2
8.	Differentiation-3	2
9.	Integration-1	2
10.	Integration-2	2
11.	Integration-3	2
12.	Mensuration-1	4
13.	Mensuration-2	2
	TOTAL	**30**

Text Book:

Title	Author(s)	Publication
Advanced Mathematics for Polytechnic	Dr. N.R. Pandya	Macmillan Publication
Engineering Mathematics - 3rd Edition	Anthony croft and others	Pearson Education Publication

Reference Book:

Title	Author(s)	Publication
Applied Mathematics for Polytechnics - 10th Edition	H. K. Dass	H. K. Dass
Applied Mathematics	W. R.Neelkanth	Sapna Publication
Polytechnic Mathematics	Deshpande S P	Pune Vidyarthi Gruh Prakashan,1984
Polytechnic Mathematics	Prakash D S	S Chand,1985

Course Evaluation:

Theory:
- Continuous Evaluation consists of two tests, each of 30 marks and 1 hour of duration and average of the same will be converted to 30 marks.
- Faculty evaluation consists of 10 marks as per the guidelines provided by the Course Coordinator.
- End Semester Examination consists of 60 marks.

Tutorial:
- Continuous evaluation consists of performance of tutorial which will be evaluated out of 10 Marksfor each tutorial and average of the same will be converted to 75 marks.
- Viva of 25 marks.

Course Outcome(s):
After the completion of the course, the following course outcomes will be able to:

IDSH1120	MATHEMATICS-II
CO 1	Solve engineering problems using the properties of complex numbers.
CO 2	Evaluate limits and differentiate functions to analyze rates of change in engineering applications.
CO 3	Apply integration techniques to compute areas and solve engineering problems involving volumes.
CO 4	Compute areas, perimeters, and volumes to solve real-world problems in mensuration.

Level of Bloom's Revised Bloom's Taxonomy in Assessment

1: Remember	2: Understand	3: Apply
4: Analyze	5: Evaluate	6: Create

Module No	Content	RBT Level
1	Complex Number	1,2,3,4,6
2	Function and Limits	1,2,3,4
3	Differentiation	2,3,5
4	Integration	2,3,5
5	Mensuration	1,2,3,5

P P Savani University
School of Engineering
Institute of Diploma Studies

Department of Applied Science & Humanities

Course Code: IDSH1140
Course Name: Chemistry
Prerequisite Course(s): --

Teaching Scheme (Hours/Week)				Examination Scheme (Marks)						
				Theory		Practical		Tutorial		
Theory	Practical	Tutorial		CE	ESE	CE	ESE	CE	ESE	Total
03	02	00	04	40	60	40	60	-	-	200

CE: Continuous Evaluation, ESE: End Semester Exam

Objective(s) of the Course:

To help learners to
- The student will understand the interdisciplinary nature of chemistry and to integrate knowledge of mathematics, physics and other disciplines to a wide variety of chemical problems.
- The student will understand the importance of the Periodic Table of the Elements, how it came to be, and its role in organizing chemical information.
- The student will acquire a foundation of chemistry of sufficient breadth and depth.

Course Content:

Section I			
Module. No.	Content	Hours	Weightage in %
1.	**Atomic Mass and Molecular Structure** Atom, Fundamental particles of Atom their Mass, Charge and Location. Atomic number and Mass number, Octet Rule, Isotopes and Isobars with suitable examples, Formation of Cation and Anion by electronic concept of oxidation and reduction, Molecule, Molecular Formula, Molecular Mass, Mole, Avogadro Number, Avogadro's Hypothesis – Relationship between Molecular Mass and Vapour Density, Simple calculations.	10	20
2.	**Chemical Bonding** Chemical Bond, Valence, Valence Electrons, Bonding and Non Bonding Electrons, Lewis Symbols. Condition for Formation of Ionic Bond, Factors Governing Formation of Ionic Bond, Metallic Bond, Covalent Bond and Co-ordinate Covalent Bond: Hydrogen	06	20

	Bonding.		
3.	**Acids and Bases** Theories of Acids and Bases, Arrhenius Theory, Lowry – Bronsted Theory, Lewis Theory, pH and pOH, Indicator, Buffer solution, Types of buffer solution with examples, Application of pH in Industries, Numericals	06	10
Section II			
1.	**Solutions and Colloids** Methods of expressing concentration of a solution Molarity, Molality, Normality, Mole fraction and Percentage Mass – Simple problems. True solution and Colloidal solution, Definition, Differences, Types of colloids – Lyophilic and Lyophobic colloids. Industrial applications of colloids.	08	20
2.	**Electrochemistry** Electrolyte, Strong and Weak electrolytes, Electrolysis, Industrial application of Electrolysis, Electroplating, Preparation of surface, Process Factors affecting the stability of the coating, Applications of Electro plating.	08	15
3.	**Electrochemical-Cell** Electrochemical Cell definition, Representation of a Cell, Single Electrode Potential definition, Galvanic Cell, Formation of Daniel Cell, Electrochemical Series, Definition and Significance, Electrolytic Concentration Cell definition and Formation.	07	15
	TOTAL	**45**	**30**

List of Practical

Sr No	Name of Practical/Tutorial	Hours
1.	Using a chemical balance.	04
2.	Introduction to chemistry laboratory – Molarity, Normality, Primary, Secondary standard solutions, Volumetric titrations, Quantitative analysis, Quantitative analysis etc.	04
3.	Demonstration: Preparation of solutions of different concentrations	04
4.	Preparation of standard solution of Oxalic acid and Sodium Carbonate.	04
5.	Determination of strength of a given solution of Sodium Hydroxide by titrating it against standard solution of Oxalic acid.	04
6.	Determination of strength of a given solution of Hydrochloric acid by titrating it against standard Sodium Carbonate solution.	04
7.	Determination of temporary and permanent hardness in water sample using EDTA as standard solution.	04
8.	Determination of pH	02
	TOTAL	**30**

Text Book(s):

Title	Author/s	Publication
Text Book of Engineering Chemistry	Chawla S.	Dhanpat Rai & Co. Pvt. Ltd., Delhi, 2003.

| Engineering Chemistry | Sharma B. K. | Krishna Prakashan Media (P) Ltd, Meerut.,2001 |

Reference Book(s):

Title	Author/s	Publication
Concise Inorganic Chemistry	J.D. Lee	Wiley India
Textbook of Engineering Chemistry (4th Edition)	R. Gopalan, D. Venkappaya, S. Nagarajan	Vikas Publishing house Ltd.

Web Material Link(s):
https://onlinecourses.nptel.ac.in/noc21_cy45/preview
https://nptel.ac.in/noc/courses/noc17/SEM2/noc17-cy03/

Course Evaluation:
Theory:
● Continuous Evaluation consists of two tests each of 30 marks and 1 Hour of duration, which will be converted to 30 marks.
● Faculty evaluation consists of 10 marks as per the guidelines provided by the course coordinator.
● End Semester Examination consists of 60 marks.

Practical:
● Continuous Evaluation consists of the performance of Practical which should be evaluated out of 10 marks for each practical and average of the same will be converted to 10 marks.
● Internal Viva consists of 10 marks.
● Practical performance/quiz/drawing/test of 15 marks during End Semester Exam.
● Viva/Oral presentation consists of 15 marks during End Semester Exam.

Course Outcome(s):
After the completion of the course, the following course outcomes will be able to:

IDSH1140	Chemistry
CO1	Implement and evaluate quality control procedures.
CO2	Perform and validate laboratory procedures to conduct tests.
CO3	Improve industrial or chemical processes and laboratory equipment.
CO4	Prepare and purify compounds using standard chemical procedure

Level of Bloom's Revised Bloom's Taxonomy in Assessment

1: Remember	2: Understand	3: Apply
4: Analyze	5: Evaluate	6: Create

Module No	Content	RBT Level
1	Atomic Mass and Molecular Structure	1, 2, 5
2	Chemical Bonding	1, 2, 3
3	Acids and Bases	2, 3, 4
4	Solutions and Colloids	2, 3, 4,5
5	Electrochemistry	1, 2, 5

| 6 | Electrochemical-Cell | 1, 2, 5 |

P P Savani University
School of Engineering
Institute of Diploma Studies

Department of Mechanical Engineering

Course Code: IDME1110
Course Name: Basics of Mechanical Engineering
Prerequisite Course(s): Zeal to learn the course

Teaching & Examination Scheme:

Teaching Scheme (Hours/Week)				Examination Scheme (Marks)						
				Theory		Practical		Tutorial		Total
Theory	Practical	Tutorial	Credit	CE	ESE	CE	ESE	CE	ESE	
03	00	02	05	40	60	-	-	100	0	200

CE: Continuous Evaluation, ESE: End Semester Exam

Objective(s) of the course:

To help learners to

- Use relevant mechanical power and hand tools in real life applications.
- Recognize the various properties of gases, steams and their applications in an engineering industry.
- Explore the working principles of different prime movers like IC Engine, Boilers
- Select relevant power transmission mode in simple engineering situation.
- Identify and comprehend various hydro-pneumatic devices/equipment, brakes, clutch and couplings.

Course Content:

SECTION-I			
Module No.	Content	Hours	Weightage in %
1.	**Introduction and Basic Mechanical Applications** Concept of Force, Pressure, Energy, Work, Power, System, Heat, Temperature, Specific heat capacity, Prime movers and its types. Basic Mechanical Components and its applications like bolts, nuts, washers, bearings, valves, bushes, springs, levers, rivets, keys, shafts, axles.	6	15
2.	**Properties of Gases** Difference between vapour and gas, perfect gas, gas laws, Boyle's law, Charle's law, Combined gas law, Gas constant and universal gas constant, N.T.P, S.T.P	6	15
3.	**Steam Generators** Introduction, I.B.R, Classification of boilers, Cohran and Babcock and Wilcox boiler, only Functioning of different mountings (Only Purposes) and accessories.	6	10

4.	**Pumps** Types, Construction and working of Reciprocating, Centrifugal pumps and Rotary pumps	4	10
	SECTION-II		
5.	**Internal Combustion Engines** Introduction, Difference between I.C. Engine and E.C. Engine, Classification of I.C. Engine, Main Components of Engine and their functions, working four- stroke cycle Petrol/Diesel engines, Comparison between Petrol cycle and diesel cycle. Basic concept of CNG and EV. (No Numericals)	8	15
6.	**Transmission of Motion and Power** Shaft and axle, Various types of Belt drive, Chain drive, Friction drive, Gear drive.	8	15
7.	**Couplings, Clutches and Brakes** Concept and applications of Couplings (Box; Flange; Pin type flexible; Universal and Oldham), Clutches (Disc and Centrifugal), and Brakes (Block; Shoe; Band, and Disc).	7	20
	TOTAL	**45**	**100**

List of Tutorials:

Sr. No.	List of Tutorial	Hours
1.	Demonstration of various types of boilers.	4
2.	Demonstration of different boiler mountings and accessories.	4
3.	Demonstration of four stoke petrol/diesel engines.	2
4.	Demonstration of centrifugal, reciprocating, and rotary pump.	4
5.	Demonstration of various belt drives and chain drive.	4
6.	Demonstration of various gear drives.	2
7.	Demonstration of various couplings.	2
8.	Demonstration of various brakes.	2
9.	Demonstration of various clutches.	2
	TOTAL	**30**

Text Book:

Title	Author(s)	Publication
Elements of Mechanical Engineering	N M Bhatt and J R Mehta	Mahajan Publishing House
Elements of Mechanical Engineering	Sadhu Singh	S. Chand Publication

Reference Book:

Title	Author(s)	Publication
Elements of Mechanical Engineering	P. S. Desai and S. B. Soni	Atul Prakashan
Basic Mechanical Engineering	Pravin Kumar	Pearson Education

Course Evaluation:

Theory:
- Continuous Evaluation consists of two tests, each of 30 marks and 1 hour of duration and average of the same will be converted to 30 marks.
- Faculty evaluation consists of 10 marks as per the guidelines provided by the Course Coordinator.
- End Semester Examination consists of 60 marks.

Tutorial:
- Continuous evaluation consists of performance of tutorial which will be evaluated out of 10 Marksfor each tutorial and average of the same will be converted to 30 marks.
- MCQ based examination consists of 20 marks.

Course Outcome(s):

After the completion of the course, the following course outcomes will be able to:

IDME1110	BASICS OF MECHANICAL ENGINEERING
CO 1	Use relevant mechanical power and hand tools in real life applications.
CO 2	Recognize the various properties of gases, steams and their applications in an engineering industry.
CO 3	Explore the working principles of different prime movers like IC Engine, Boilers
CO 4	Select relevant power transmission mode in simple engineering situation.
CO 5	Identify and comprehend various hydro-pneumatic devices/equipment, brakes, clutch and couplings.

Level of Bloom's Revised Bloom's Taxonomy in Assessment

1: Remember	2: Understand	3: Apply
4: Analyze	5: Evaluate	6: Create

Module No	Content	RBT Level
1	Introduction and Basic Mechanical Applications	1,2,3
2	Properties of Gases	1,2,3,4
3	Steam Generators	1,2,3
4	Pumps	1,2,3
5	Internal Combustion Engines	1,2,3,4
6	Transmission of Motion and Power	1,2,3,4
7	Couplings, Clutches and Brakes	1,2,3,4

P P Savani University
School of Engineering
Institute of Diploma Studies

Department of Information Technology

Course Code: IDIT1110
Course Name: Python Programming
Prerequisite Course(s):

Teaching & Examination Scheme:

Teaching Scheme (Hours/Week)				Examination Scheme (Marks)						
Theory	Practical	Tutorial	Credit	Theory		Practical		Tutorial		Total
				CE	ESE	CE	ESE	CE	ESE	
03	02	-	04	40	60	40	60	-	-	200

CE: Continuous Evaluation, ESE: End Semester Exam

Objective(s) of the course:
To help learners to
- To understand basic of python programming.
- To implement various control structures on different data types and analyze the use of different data structures in Python.
- Develop logic building and problem-solving skills.

Course Content:

SECTION-I			
Module No.	Content	Hours	Weightage in %
1.	**Introduction to Python** History, Features and application of python, installing Python, Basic structure of python program, Input and Output Functions in Python, Variable, Identifiers, Basic Operators, Expressions and Types of Data Int, Float, Complex, String, List, Tuple, Set, Dictionary and its Methods, Type Conversions, Comments, Input Processing and output.	06	14
2.	**Control Flow Structures in Python** Conditional Blocks Using if, if_Else and Else If, Simple for Loops in Python, For Loop Using Ranges, String, List and Dictionaries Use of While Loops in Python, Loop Manipulation Using Pass, Continue, Break and Else	07	18
3.	**Array and Strings** Array, Advantages of array, Creating an array, Importing the array module, Indexing and slicing on arrays, Processing the arrays, Types of arrays. Introduction to String, Access String elements using index	08	18

	operator, String functions: Basic functions: len, max, min, Testing functions: isalnum, isalpha, isdigit, isidentifier, islower, isupper, Searching functions: endswith, startswith, find, rfind, count, Manipulation functions: capitalize, lower, upper, title, swapcase, replace, lstrip, rstrip, strip		
	SECTION-II		
4.	**Lists, Tuples, Sets, and Dictionaries** Dictionaries, Accessing Values in Dictionaries, Working with Dictionaries, Properties, Functions and Methods. Sets, Accessing Values in Set, Working with Set Properties, Functions and Methods, Tuple, Accessing Tuples, Operations, Working, Functions and Methods. List, Accessing List, Operations, Working With Lists, Function and methods, two-dimensional lists.	08	15
5.	**Functions, Modules and Packages** Introduction to Functions, defining a Function, Calling a Function, Types of Functions, Function Arguments, Anonymous Functions, Global and Local Variables, Importing Module, Math Module, Random Module, Introduction to Packages: Numpy, Pandas, Matplotlib.	08	15
6.	**File Handling** Introduction to Text files, File Handling functions: Basic functions: open, close, Reading file: read, readline, readlines, Writing file: write, append, writelines	08	20
	TOTAL	**45**	**100**

List of Practical:

Sr. No.	List of Practicals	Hours
1.	Introduction to Python (Introduction to IDLE, different data types, Input Output in Python, Operators, Operator precedence).	04
2.	Implementation of Dictionaries, Sets, Tuples and Lists and its various methods in Python.	06
3.	Working with decision structures in Python	04
4.	Working with array in Python	04
5.	Manipulation of Strings.	02
6.	Working with functions in Python.	04
7.	Working with modules and packages in Python.	04
8.	Implementation of file handling in Python.	02
	TOTAL	**30**

Text Book:

Title	Author(s)	Publication
Python approach Programming: A modular	Sheetal Taneja, Naveen Kumar	Pearson

Reference Book:

Title	Author(s)	Publication
Think Python: How to Think Like a Computer Scientist	Allen Downey	Green Tea Press
Python Cookbook	David Ascher, Alex Martelli Oreilly	O Reilly Media

Course Evaluation:
Theory:
- Continuous Evaluation consists of two tests, each of 30 marks and 1 hour of duration and average of the same will be converted to 30 marks.
- Faculty evaluation consists of 10 marks as per the guidelines provided by the Course Coordinator.
- End Semester Examination consists of 60 marks.

Tutorial:
- Continuous evaluation consists of performance of tutorial which will be evaluated out of 10 Marksfor each tutorial and average of the same will be converted to 30 marks.
- MCQ based examination consists of 20 marks.

Course Outcome(s):
After the completion of the course, the following course outcomes will be able to:

IDIT1110	PYTHON PROGRAMMING
CO 1	Interpret the fundamental Python syntax, and semantics and be fluent in the use of Python control flow statements.
CO 2	Determine the methods for creating and manipulating Python programs by utilizing data structures like lists, dictionaries, tuples, and sets.
CO 3	Apply a modular programming approach to solve the given problems using user defined functions.
CO 4	Perform string manipulation and file operations to solve the given problems.

Level of Bloom's Revised Bloom's Taxonomy in Assessment

1: Remember	2: Understand	3: Apply
4: Analyze	5: Evaluate	6: Create

Module No	Content	RBT Level
1	Introduction to Python	1,2,4
2	Control Flow Structures in Python	1,2,3
3	Array and Strings	1,2,3
4	Lists, Tuples, Sets, and Dictionaries	2,3,4
5	Functions, Modules, and Packages	2,3,4
6	File Handling	3,4,5

P P Savani University
School of Engineering
Institute of Diploma Studies

Department of Mechanical Engineering

Course Code: IDME1120
Course Name: Workshop Fundamentals
Prerequisite Course(s):--

Teaching & Examination Scheme:

Teaching Scheme (Hours/Week)				Examination Scheme (Marks)						
Theory	Practical	Tutorial	Credit	Theory		Practical		Tutorial		Total
				CE	ESE	CE	ESE	CE	ESE	
00	02	00	02	00	00	100	-	-	-	100

CE: Continuous Evaluation, ESE: End Semester Exam

Objective(s) of the course:
To help learners to
- Introduce essential tools and machines used in workshops, emphasizing their functions, handling, and maintenance.
- Provide practical training in machining, fitting, carpentry, and other foundational manufacturing techniques.
- Instill the importance of workshop safety protocols to prevent accidents and ensure a secure working environment.
- Bridge the gap between classroom learning and real-world applications by implementing engineering principles in practical tasks.

Course Content:

SECTION-I		
Module No.	Content	Weightage in %
1.	**Introduction to Workshop Practice** Workshop Layout, Overview of workshop safety rules and regulations, Importance of various sections/shops in workshop, Understanding tools, materials, and machinery.	7
2.	**Carpentry, Fitting and Bench work** Basic wood types and their properties, Tools: saws, chisels, planes, hammer, and clamps, Preparation of Job as per Drawing including Marking and other Performing Operations Tools: files, hammers, punches, and measuring instruments, Techniques: filing, drilling, tapping, and sawing.	33
3.	**Introduction to Machine Tools and Sheet Metal Work** Introduction and Demonstration of various Machine Tools like Lathe, Drilling, Grinding, Hack Saw Cutting etc. Introduction to sheet metal materials and their uses, Tools: snips, mallets, and stakes, Techniques: bending, cutting, joining, and soldering	26
SECTION-II		

4.	**Welding and Plumbing** Types of welding: gas, arc, and MIG/TIG welding, Tools and safety equipment for welding, Welding techniques and applications. Introduction and Demonstration of Plumbing Shop.	7
5.	**Forging and Smithy** Tools: hammers, anvils, and tongs, Techniques: heating, bending, and shaping metals Applications of forging in engineering.	13
6.	**Measurement and Metrology** Introduction to measuring tools: Vernier calipers, micrometers, and gauges, Precision and accuracy in measurements.	7
7.	**Electrical and Electronic Skill** Use of Multimeter, Soldering of electrical circuits having discrete components (R, L, C & diode) and ICs on PCB, connections on Breadboard	7
	TOTAL	**100**

List of Practical:

Sr. No.	Name of Practical	Hours
1.	Introduction and Demonstration of Safety Norms and various shops.	02
2.	To Perform a Job of Fitting Shop.	08
3.	To Perform a Job of Carpentry Shop.	04
4.	To Perform a Job of Black Smithy shop.	04
5.	To Perform a Job of Sheet metal Shop.	08
6.	To Perform a Job of Plumbing Shop	02
7.	Introduction to Machine Tool	02
	TOTAL	**30**

Text Book:

Title	Author(s)	Publication
Elements of Workshop Technology	S K Hajra Choudhury	Media Promoters & Publishers
A text book in Electrical Technology	B L Theraja	S Chand and Co

Reference Book:

Title	Author(s)	Publication
A Textbook of Workshop Technology	Deepak Dhounchak and Lalit Kumar Biban	White Falcon Publishing; 1st edition
Elements Of Workshop Technology Vol 2 Machine	S. K. Hajra Choudhury and Nirjhar Roy	Media Promoter and Publishers Pvt. Ltd.
Basic Electronics: A text lab manual	P.B. Zbar, A.P. Malvino, M.A. Miller	Mc-Graw Hill.

Course Evaluation:
Practical:
● Continuous Evaluation consists of Performance of Practical/Tutorial which will be evaluated outof 10 for each practical/Tutorial and average of the same will be converted to 30 Marks.

- Faculty evaluation consists of 10 marks as per the guidelines provided by the Course Coordinator
- Internal Viva consists of 30 Marks.
- Practical performance/quiz/drawing/test will consist of 30 Marks.

Course Outcome(s):

After the completion of the course, the following course outcomes will be able to:

IDME1120	WORKSHOP FUNDAMENTALS
CO 1	Students will demonstrate proficiency in basic workshop operations such as carpentry, fitting, welding, and machining.
CO 2	Understand the proper use and maintenance of hand tools, power tools, and workshop machinery, and sheet metal work
CO 3	Adopt essential safety protocols to ensure a hazard-free workshop environment.
CO 4	Identify and utilize various materials effectively, understanding their properties and applications in engineering projects.

Level of Bloom's Revised Bloom's Taxonomy in Assessment

1: Remember	2: Understand	3: Apply
4: Analyze	5: Evaluate	6: Create

Module No	Content	RBT Level
1	Introduction to Workshop Practice	1,2
2	Carpentry, Fitting, and Benchwork	1,2,3
3	Introduction to Machine Tools and Sheet Metal Work	1,2,3,4
4	Welding and Plumbing	1,2,3,4
5	Forging and Smithy	1,2,4
6	Measurement and Metrology	1,2,3,4,5
7	Electrical and Electronic Skill	1,2,3

P P Savani University
Centre for Language Studies

Course Code: CFLS2120
Course Name: Elementary Communicative English-II
Prerequisite Course(s): -- CFL2110 : Elementary communicative English-I

Teaching & Examination Scheme:

Teaching Scheme (Hours/Week)				Examination Scheme (Marks)						
Theory	Practical	Tutorial	Credit	Theory		Practical		Tutorial		Total
				CE	ESE	CE	ESE	CE	ESE	
02	00	00	02	100	00	00	00	00	00	100

Objective(s) of the Course:

To help learners to:
- Understand difference between formal and functional English.
- Use English in daily life.
- Communicate thoughts.
- Be an efficient Listener.
- Be an efficient speaker.
- Sharpen reading skills.
- Improve writing skills.

Course Content:

Section I			
Module No.	Content	Hours	Weightage In %
1.	**Introduction to Functional English** • Formal Vs. Functional English • Functional English in daily life • Importance of LSRW Skills	03	10
2.	**Listening** • Difference between Hearing and Listening • Listening to get information • Listening to understand • Listening instructions to follow	05	20
3.	**Speaking** • Introducing Self • Expressing likes and dislikes • Talking about Family • Describing Surrounding • Narrating Memorable Incidents • Inquiring, Requesting, Ordering, Questioning, Answering	07	20
Section II			
Module No.	Content	Hours	Weightage in %
1.	**Reading** • Reading to Comprehend • Read to Scan • Read to Skim	07	25

2.	**Writing** • Importance of Punctuations • Strategies to develop Paragraphs • Paragraph writing by comprehending pictures, map, tables, and authentic material • Expressing like, dislikes, experiences • Narrating stories, incidents • Writing short letters	08	25

(continued from the row above)

• Reading information from authentic material
• Reading Newspaper, Magazines, Books

Text Book (s):

Title	Author/s	Publication
Communication Skills	Parul Popat & Kaushal Kotadia	Pearson, 2015

Reference Book (s):

Title	Author/s	Publication
Communication Skills, Second Edition	Sanjay Kumar, PushpLata	Oxford University Press,2015
Communication Skills for Engineers	Sunita Mishra	Pearson, 2011

Course Evaluation:

Theory:
- Continuous Evaluation consists of two tests each of 25 marks. Test one can be based on Reading and Writing Skills whereas Test Two can be based on Listening and Reading Skills.
- End Semester Examination consists of 60 marks.

Course Outcome(s):

After completion of the course, the student will be able to

CFLS2120	ELEMENTARY COMMUNICATIVE ENGLISH-II
CO 1	Narrate incidents, events, experiences.
CO 2	recognize the difference between formal and functional English.
CO 3	Comprehend authentic material.
CO 4	Define the need of Communication Skills in personal and professional life.
CO 5	Introduce them and talk about family efficiently.
CO 6	Identify their likes, dislikes, desires effectively.
CO 8	Practice scanning and skimming.
CO 9	Use punctuations accurately while writing.
CO 10	Recall listening skills.
CO 11	Draft paragraphs, and letters.

Level of Bloom's Revised Bloom's Taxonomy in Assessment

1: Remember	2: Understand	3: Apply
4: Analyze	5: Evaluate	6: Create

Module No	Content	RBT Level
1	Introduction to Functional English	2
2	Listening	2,4,5
3	Speaking	3,6
4	Reading	2,4,5

5	Writing	3,6